

# Using Innovative Technology to Monitor Compliance-Case Study: The Cannabis Identification and Prioritization System (CIPS)

## Background:

Regulation of cannabis cultivation on private lands poses unprecedented logistical challenges given the scope and distribution of cultivation sites throughout the State. Estimates of the number of cultivation sites statewide vary widely, but generally are assumed to be in the tens of thousands. Most sites are distributed across small parcels throughout various land use designations including timberland and other rural residential properties in sensitive foothill and forested landscapes.

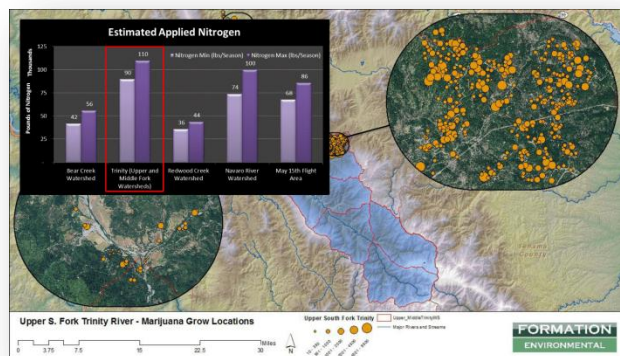
The CIPS technology solution was developed to: 1) identify and map cultivation sites; 2) identify site-specific information about each site (i.e., slope, soil type, distance to watercourse, class of watercourse, estimated number of plants, disturbed area, land use, ownership information, etc.); 3) assess the threat each site poses to water quality based on selected metrics; and 4) classify sites based on threat to water quality and corresponding permitting criteria. CIPS allows Water Board staff to quantify cannabis cultivation impacts on the environment, as well as our progress in mitigating those impacts over time.

## Summary of Project:

The Governor's 2014/2015 Budget launched the [Marijuana Pilot Program](#) by allocating funds to the Water Boards and to the Department of Fish and Wildlife to hire staff, and \$200,000 to develop CIPS.

The CIPS technology solution *leverages Geographical Information System (GIS) and Remote Sensing software and data for landscape-wide identification, analysis and prioritization of focus areas*. In April 2015, the State Water Board's Division of Information Technology (DIT), the North Coast and Central Valley Regional Water Boards partnered with [VESTRA Resources, Inc.](#) and [Formation Environmental](#) to develop the CIPS solution using the following key elements:

- Baseline collection of available geographic information,
- Assembling known information on cannabis grow sites,
- Assembling base layer information,
- Establishing geospatial database infrastructure,
- Developing CIPS solution using remotely sensed imagery and modeling,
- Configuring/Developing end-user solutions,
- Knowledge and systems transfer to the State Water Board DIT environment.

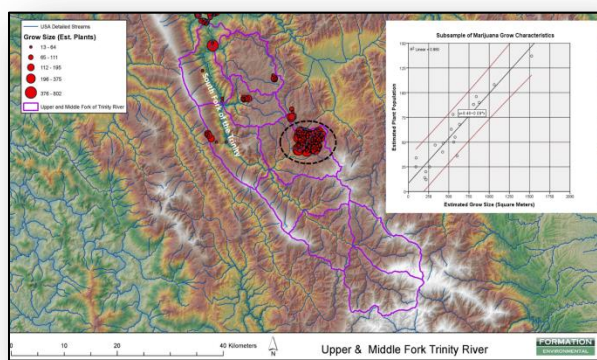


Available funds required the development team to balance system functionality with the mapping area. As a result, the CIPS solution provided Water Board staff with a geodatabase of cultivation sites over approximately 15,600 square kilometers in the North Coast and Central Valley regions; details of which are provided in the table below.

*Summary - Number of Grow Sites per Area Mapped*

Region	Sq. Kilometers Mapped	% Region Mapped	# Grow Sites
<b>Central Valley Water Board</b>	7,650	~5%	3,295
<b>North Coast Water Board</b>	7,974	~12%	15,755
<b>Total</b>	<b>15,624</b>	<b>~17%</b>	<b>19,050</b>

The finished application code is owned by the State Water Board, requires no annual fees or maintenance costs to outside parties, can be maintained by the State Water Board DIT, and continuously updated by Water Board program staff as new grows are identified, and allows adjustments to the prioritization metrics to evaluate different scenarios. This innovative solution provides the Water Boards with a turn-key GIS modeling tool to assist program staff in the prioritization of site inspections, enforcement actions, and targeted public outreach and education.



The Governor's 2017/2018 Budget allocated an additional \$900,000 to purchase additional data sets and modeling enhancements to reflect evolving program needs. Additional future enhancements (at an additional cost) may include:

- Integration with the Water Board's California Water Quality Information System ([CIWQS](#)),
- Integration with the State Water Board's Electronic Water Rights information Management System ([eWRIMS](#)),
- Integration with the Department of Fish and Wildlife's Biogeographic Information and Observation System ([BIOS](#)).

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